

1	15	16	30	31	45	46	60	61	75	76	90
1 B.halodurans	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2 C.acetobutylicum	-MNSKEMQKLQTS	YKEGWSCEIRVELQN	STRAHSISTAFDRK	DGCKLYETNLLERIL	SRENLIQALERVEKN	KSGYGVDEMVKSLR	36				
3 <b>Bst803-2065</b>	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
4 PaicaligenesMatur	MPPVGAVSLVTVMQ	KEPTAETVIPNCPQK	PRVMPDSAKVPAASA	TWTNAEPDTLMERVL	APANLRRAYQVRVSN	KGAPGADGMTVADLA	90				
1 B.halodurans	105	106	120	121	135	136	150	151	165	166	180
2 C.acetobutylicum	LHLHENWTSIRNEII	EGSYFPPKPVRRVEIP	KPNGGVRLGIPTVM	DRFLQQAIAQILTLQ	YDPTFSERSFGFRPH	RRGHNAVROAKQMMK	126				
3 <b>Bst803-2065</b>	QYLKQNGKTLIASIF	NGKYCPKAVRRVEIP	KPDGGIRLLGIPTVV	DRTIQQAISQVLTP	FEKTFSENSYGFRPK	RSAKQAIIKKAKEYME	179				
4 PaicaligenesMatur	DYIRAHWSTIRAQALL	AGTYRPAVPVRVGIIP	KPGGGTROLGIPTVV	DRLIQQAIIQELTPI	FDPDFSPSFGFRPG	RNAHDAVROAQGYIQ	128				
	GYVKQYWPPTLKARLL	AGEYHPQAVRAVEIP	KPGGGTROLGIPSVV	DRLIQQAIIQQLTPI	FDPLFSDISYGFRPG	RSTHQAIEMARAHVT	180				
1 B.halodurans	195	196	210	211	225	226	240	241	255	256	270
2 C.acetobutylicum	EGYRWVVVDIDLEKEFF	DKVNHDRMLMRKLSSR	IQDPRVLQILIRYIQ	TGVMERGLVSPNTEG	TPQGGPLSPILLSNIV	LDELNELEKRGKLF	216				
3 <b>Bst803-2065</b>	EGYKWVVDIDLEKEFF	DTVNHDKLMALVARK	IKDKRVLKLLIRLYIQ	SGVMINGVSVSETERG	CPQGGPLSPILLSNIM	LTELDELEKRGHKE	269				
4 PaicaligenesMatur	EGYRYVVDMDLEKEFF	DRVNHDIILMSRVARK	VKDKRVLKLLIRAYIQ	AGVMIEGVKVOTEEG	TPQGGPLSPILLSNII	LDDLDELEKRGKLF	218				
	AGHRWCVELDELEKEFF	DRVNHDIILMACIERR	IKDKCVLRLIRRYLE	AGIMSGGVVSPROEG	TPQGGPLSPILLSNII	LDELDELEKRGHRF	270				
1 B.halodurans	285	286	300	301	315	316	330	331	345	346	360
2 C.acetobutylicum	VRVADDNCNIYVRSKR	AGLRIMESVTSFTEN	RLKLKVNREKSAVDR	PWNRKFLGFSFTRGK	-DPKMRVSKESVKRL	KORIRELTSSRRHSMK	305				
3 <b>Bst803-2065</b>	CRYADDNNVYVRSKK	AGDRVMRSITRFIEN	KLKLKVNREKSAVDR	PWRKFTLGTFTFYQWY	GKIGIRVHEKSVKVF	KAKIKAITASNALN	359				
4 PaicaligenesMatur	CRYADDNCNIYVKSRL	AGORVKOSIQRFLEK	TIKLKVNREKSAVDR	PWKRAFTLGTFTFYQWY	-KARIRLAPRSIQRL	KORIRQLTNPNSIS	307				
	VRVADDNCNIYVRSRPR	AGERVLVSVERFLRE	RLKLKVNREKSAVDR	AWKCDYLGIGYGNWHQ	-QPRLRVARMSLDRL	RDLRLMLRSVRARK	359				
1 B.halodurans	375	376	390	391	405	406	420	421	435	436	450
2 C.acetobutylicum	MSDRRLRLNRYLTGW	LGYYQVVDTPSIIAQ	IDAWTIRRLRMIRWK	EWKTTTSARQKNLVL	GIKKAKAKQWANSRK	GYWRVAHSPIMDYAL	395				
3 <b>Bst803-2065</b>	LENRIIKLRQCIIGW	LNIFYGIAETKLAKK	LDEWTIRRLRMIRWK	QWKKKVTKYDNLKRF	GINNSKAWEFANTRK	SYWRANSFILSTTL	449				
4 PaicaligenesMatur	MPERIHVRVQYVMGW	IGYFRLVETPSVLQT	IEGWIRRLRLCQWL	QWKRVTRIRELRAL	GLKETAVMEIANTRK	GAWRITKTPQLHQAL	397				
	MATVIERINPVLIRGW	ASYFKLSQSKRPLEE	LDGWVHKLRCVIR	QWKQPTLRLNMLRL	GLSEERANKSAFNGR	GPWNNSGAQHMYAL	449				

Fig. 1

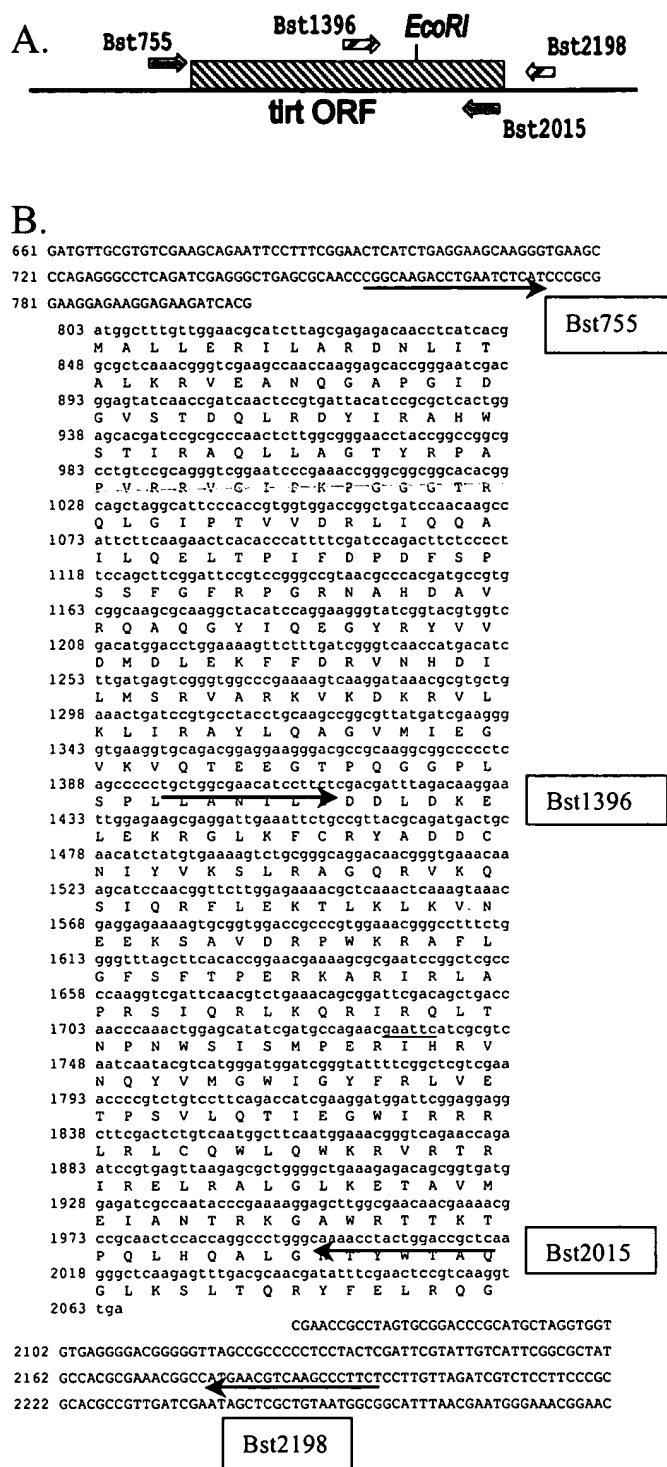


Fig. 2

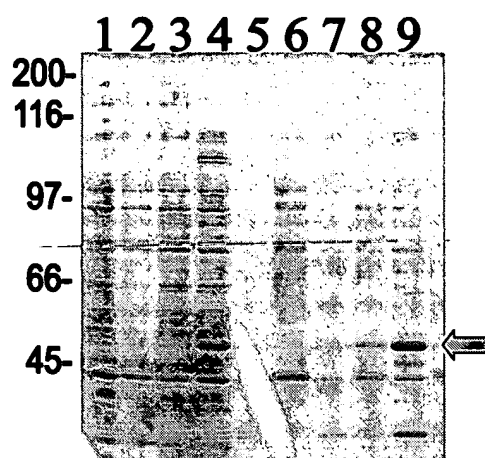


Fig. 3

BEST AVAILABLE COPY

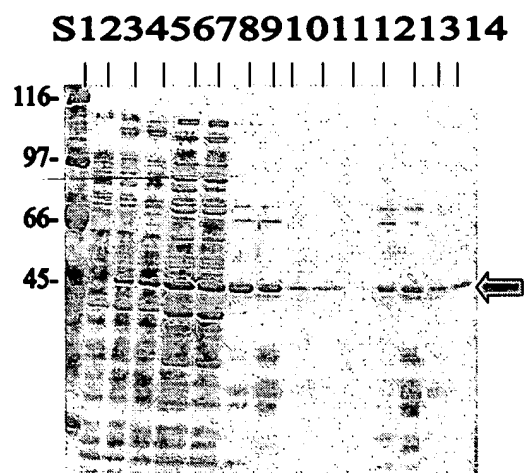


Fig. 4

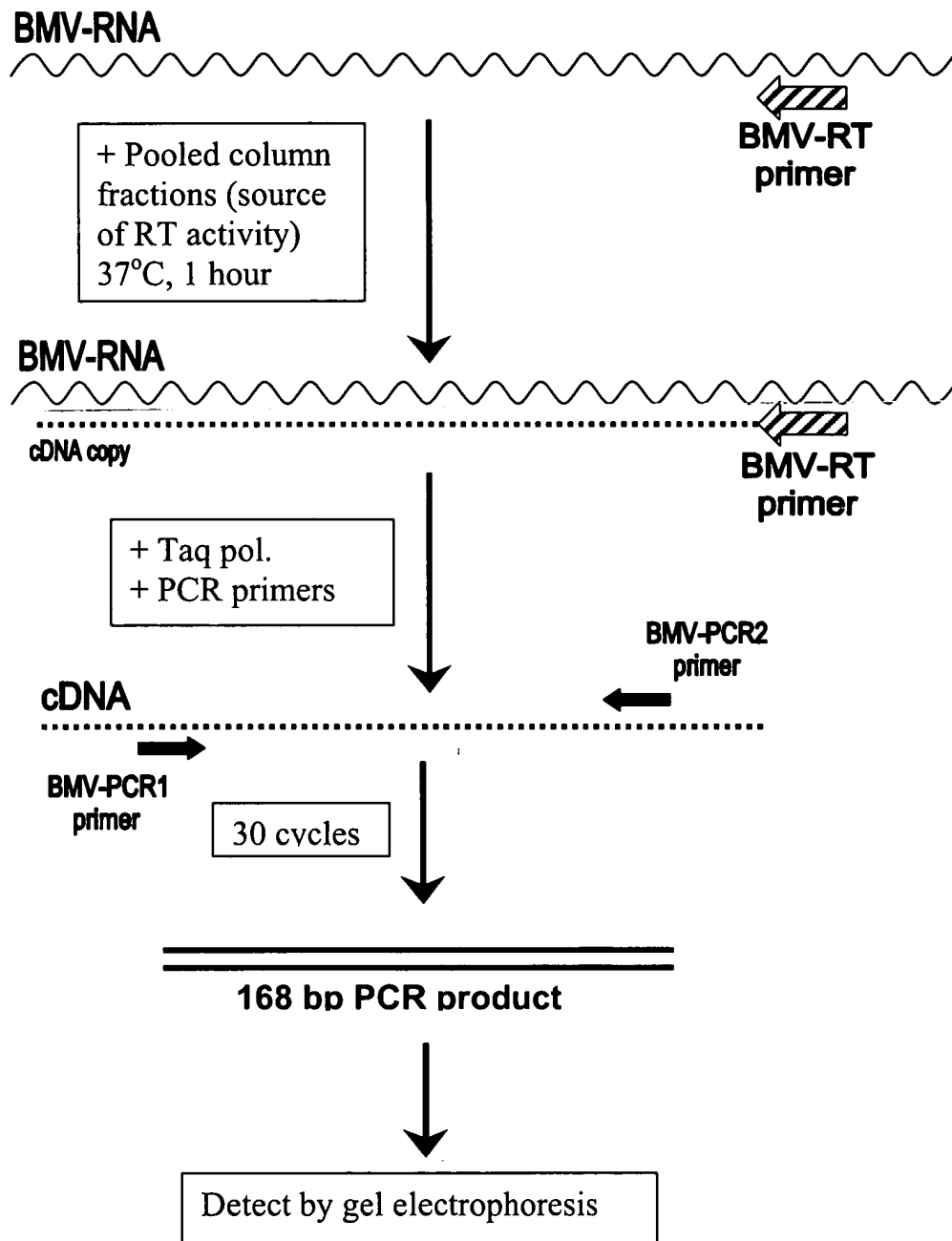


Fig. 5

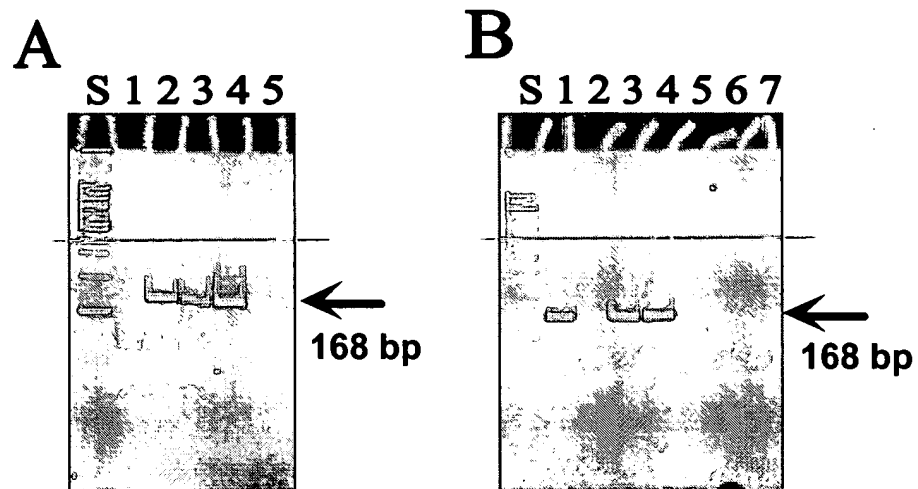


Fig. 6

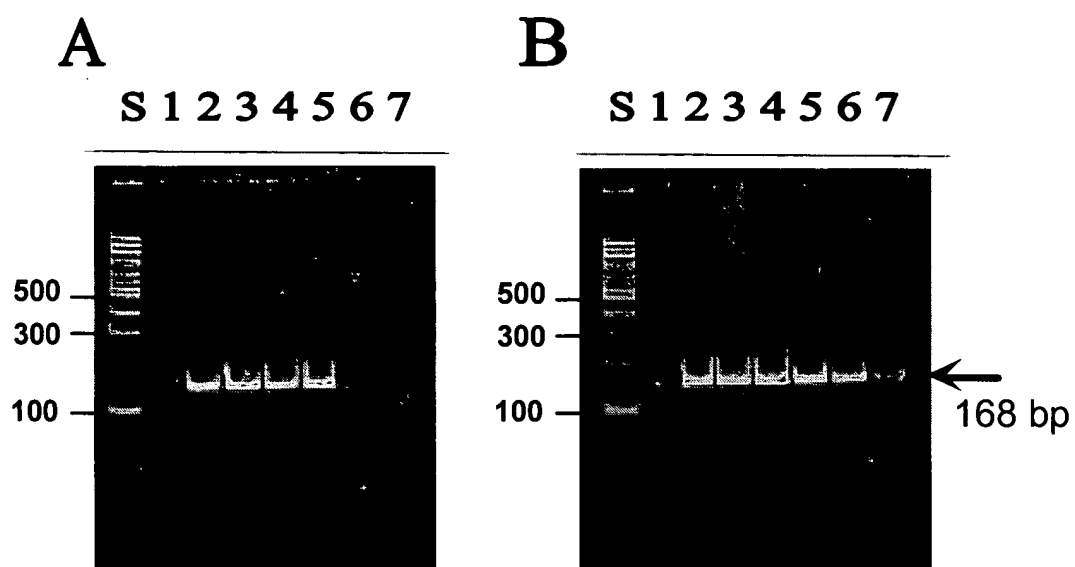
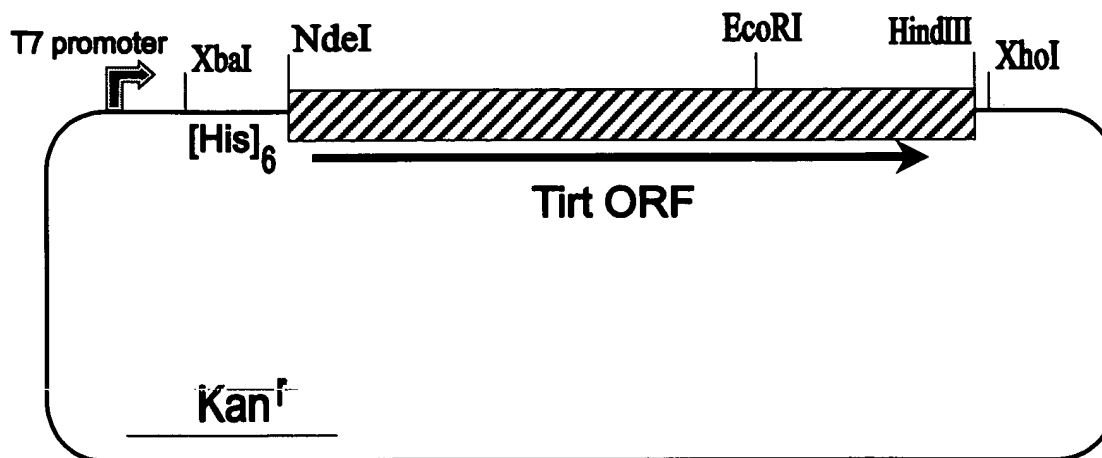


Fig. 7

A.



Plasmid pTirt#16

B.

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                                T7 promoter
1  TGGNNNNAGT NTTTAAACCT TTNACCGCC NTAATACNAC TCACTATAGG
    lac operator
51  GGAATTGTGA GCGGATAACA ATTCCCTCT AGAAATAATT TTNTTAACT
    rbs                                His-tag
101  TTAAGAAGGA GATATACCat gggcagcagc catcatcatc atcatcacag
        M   G S S   H H H H   H H S
        > start of fusion  NdeI
151  cagcggcctg gtgccgcgcg gcagccatat gcggcaagac ctgaatctca
        S G L   V P R G   S H M   R Q D   L N L I
        > start of Tirt ORF
201  tcccgcggaa ggagaagatc acgatggctt tgttggaacg catcttagcg
        P R K   E K I   T M   A L   L E R   I L A
        > start of Tirt ORF
251  agagacaacc tcatcacggc gctcaaacgg gtcgaagcca accaaggagc
        R D N L   I T A   L K R   V E A N   Q G A
  
```

Fig. 8